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THE JOURNAL OF PHILOSOPHY

A CRITIQUE OF PRAGMATIST ETHICS

AN important issue for contemporary philosophy is in the movement to bring pragmatism into relation with ethics. As a moral method, a psychology of values, and the sponsor of a specific moral mood and interest, pragmatism has developed an ethical literature which asserts a potent influence not only in formal moral philosophy but also among the intelligent laity, to whom Dewey and Tufts are household names for the application of ethical method to modern organization and life. While this influence is doubtless deserved, the writings of pragmatist ethicists, presenting in general an intelligence, liberalism, and wholeheartedness which can not but evoke respect, offer at the same time frequent occasion for philosophical controversy. Much of what has been enthusiastically accepted as moral revelation seems to require amendment, and much even to call for rejection.

In attempting to criticize ethical pragmatism, we may take as the best point of departure the pretension of pragmatism to offer us a new moral method. This moral method is in the admonition to approach each ethical situation as a unique problem, without the preconceived and generalized ideas of good and bad which characterize absolutism; it is impressed upon us that the solution of any ethical problem is obtained by the careful application to that problem of an unbiased and observant intelligence, an intelligence which records data, analyzes them, and envisages all the possible consequences in which action in the context of these data may eventuate. Now the question which is pertinent to the pragmatic method is briefly stated this: admitting that all the pragmatist tells us is *necessary* to the solution of an ethical dilemma, is it yet *equivalent* to the solution of an ethical dilemma? Is the pragmatic method, taken in itself, something that in actual practice "gets" us anywhere? Is not, after all, its main service a negative one—a preventing us from being ensnared in the obtusenesses of absolutism?

It would seem as though the pragmatists have formulated their method with a view to all dilemmas except those which we really designate by the word "moral." For the very essence of a moral dilemma, as distinguished from purely practical dilemmas, is that

something more is necessary than knowledge of all the factors in the situation and the use of analysis. In the sense in which ethical is ordinarily taken, an ethical dilemma is one characterized not so much by ignorance of objective conditions and circumstances as by a conflict of values, an indecision as to what evaluation this "taking into reckoning all the factors" should eventuate in. We may know all the courses of action compatible with the factors of a given situation, we may know all the consequences to be expected from each, and we may still be uncertain as to the ethical implication which detailed analysis of the situation possesses. It is because it possesses *per se* no ethical implication whatsoever. All that analysis and foresight really do is to enable the intelligent exercise of certain intrinsic evaluations which are of our very blood, coming we know not whence and we know not why. The vast majority of our ethical dilemmas take place, indeed, not through uncertainty about consequences, but through our accurate perceptions of all the consequences. We can not decide which of several consequences we like the most; we can not decide whether or not we like a single consequence. Aside from this there are truly episodes in the moral life where the tracing out of consequences plays an important and necessary part, but only in preparation for the intelligent, expedient application of one of our intrinsic evaluations. Now in the setting up of intrinsic evaluations, pragmatism can not help us.

In the first place, then, we must answer our original question in the negative—ethical pragmatism does not succeed in "getting" us anywhere. In a sense it is no more a moral method than the Einstein theory of relativity; there is a failure to set up values, and it is the uncertainty as to values which is at the heart of the ethical dilemma. What pragmatism is to be blamed for is not that it has failed in this respect—it may very well be that no moral philosopher born of woman can authoritatively give moral ultimates—but that it does not avow the limitations of its method quite frankly. It should abandon the tone which implies that its moral method really "solves" a moral dilemma.

There are, I think, also other objections which can be raised. The tone in which pragmatist relativism is presented not only gives us the delusive feeling that we are being given a positive moral criterion, but also that this relativism is something new. We have the feeling that we have come into some great new wisdom; have been placed on a point of great ethical vantage as compared with our ancestors. This smugness is dangerous, and, moreover, it is hardly justified—relativism is as old as the hills and common-sense. It must be granted that ethical pragmatism has performed a useful and significant service in combating absolutistic ethics, but the service

is purely academic. In actual practice almost no one has been absolutistic except those whose minds have been spoiled by reading too much moral philosophy.

Another point is whether pragmatism does not produce the impression that every ethical situation not only *may* be, but also *is*, unique. To realize that every situation *may* be unique means to preserve impartiality and fresh view, but to believe that it necessarily *is* unique is to approach the situation with as great a dogmatism as the absolutist. Pragmatism impresses us with the fact of moral change, it does not impress us with the fact of moral *recurrence*. Whereas there are some situations which we must meet by considering them new and unique, there are as many others which we can only meet by realizing that they are not new and unique, that they are like a situation which came before. And it hardly needs to be pointed out that no situation is completely unique. Even in the situation which is most unique there are probably enough elements of similarity with past problems. Now it is not absolutism, but rather ethical common-sense, if one differs with pragmatism by taking the point of view that it is better to approach an ethical situation with regard to its points of similarity with past ethical situations than with a regard to its uniqueness. The unique elements in a situation are apt to be the conspicuous ones, the resemblant elements are apt to be such as are only to be discovered by analysis and needful, therefore, of the more concentration.

I wish now to turn to a phrase of ethical pragmatism which is as conspicuous as its moral method and on which, indeed, the moral method is based: its ethical psychology. The primary interest of this ethical psychology is the identifying of the moral judgment with a category called "the judgment of practice"; thus the chief traits of the moral judgment are held to lie in its arising in the course of overt behavior, its concern with the selection of a proper course of conduct to solve an *impasse*, and its construction by the same logic as any other judgment referring to practice.

Now there is a general criticism which this moral psychology calls for even before we consider it in single points. Namely, it occurs to one immediately that the central problem of moral psychology is ordinarily construed as an endeavor to define the *uniqueness* of the moral judgment, whereas Dewey, in his undiscriminated "judgment of practice," denies this uniqueness and would virtually substitute for "moral judgment" the phrase "practical judgment." A moral judgment can certainly be a judgment of practice, but is every judgment of practice a moral judgment? Moreover, is *every* moral judgment a judgment of practice? This point we shall consider in detail later. But even if we allowed the assumption that

all moral judgments have to do with practice, it would, nevertheless, be untrue that the common reference of any two judgments to practice denotes that they have a common logical or common psychological structure. One can be a moral judgment of practice, the other a non-moral judgment of practice. But this distinction between the moral judgment and the non-moral judgment, pragmatism does not recognize; it overlooks the psychological difference between choices dictated by moral sentiment and choices which the average man—and the pragmatic philosopher, perhaps, also, in his spontaneous and unprofessional moments—regard as non-moral. We feel that it is *immoral* to rob one's mother, but merely *senseless* to mount a horse from the right side rather than the left. It is certainly a matter of some importance to know from what side your horse should be mounted, but to use in these issues of pure expediency and adaptation the word "moral" is to rob our speech of the common word necessary to designate the peculiar psychological attitude involved in a certain type of choice and decision. And even though one insists that intelligence in the conduct of life is a moral value in itself and that "morals has to do with all activity into which alternative possibilities enter" (Dewey), one still has no right to overlook the fact that in direct experience the moral consciousness, the sense of a "right and wrong" issue, is a unique phenomenon. Dewey's "judgment of practice" does not formulate this psychological uniqueness of moral experience. Yet this psychological distinctiveness, implied by language itself in the existence of such a word as moral and recognized universally by the popular mind, should be the very starting-point of all moral psychology.

After this initial and perhaps root confusion, the second most important issue is the pragmatist's claim that moral judgment involves the application of a logic—"The Logic of Judgments of Practice." It is indeed this psychology which made possible the presentation with such a confidence of the pragmatic moral method, a method involving the correct application of logic in ethical problems. But we saw that the method would not work, and now we may reformulate the reason for its not working in terms of the underlying psychology involved. The reason is that our ultimate moral values do not come to us by way of logic at all; they are direct reactions to experience and are as inexplicable as our affections. Our response and sensitivity to moral values is so intrinsic that we can not tell how these values arise with us or when; and this is true both as regards the decencies of civilized conduct and the more subtle values of esthetico-ethical appreciation. We come to the delusion of taking our moral values as rational, philosophical things partly because logic enters into the formation of *instrumental* values, that is, values

which are such because they *lead* to intrinsic values. The pragmatist seems to confuse the two and to forget that instrumentalist judgments are pertinent, not to the formation of our moral values, but simply to their application in shifting contexts of experience. Another reason that moral values appear to the pragmatist as logical products is perhaps that the elementary emotions and affections which they represent are shared by nearly every one; "logical" is interchanged with "reasonable" or "normal." But if we overlook the specious authoritativeness lent by social concurrence, the moral life must appear in even its most sane and moral manifestations as something mad and sentimental. The pragmatic juxtaposition of logical and ethical is in the light of this consideration sheer paradox, as meaningless as the popular phrase "rational religion."

A third point for controversy is the inordinate emphasis placed by pragmatic ethical psychology on the *consequence* as opposed to *disposition*. Professor Dewey, in his *Human Nature and Conduct*, even goes so far as to say that we value disposition only because disposition in the long run does produce the consequences desired. There are two points here at issue: in the first place, whether our moral approbation of someone else is based upon a view of disposition or of consequence; second, whether our moral evaluations of our own acts are *primarily* approbations of the consequences of these acts or of the disposition to bring about these consequences. Of course, in both cases it is both disposition and consequences which are viewed, but the pragmatist psychology seems to go to an extreme in viewing the consequence. Now what is viewed *primarily*, it would rather seem, is disposition. We can approve morally another person's act even though we disapprove of the consequence, because it is the disposition which presents itself as the object of our moral consideration. Let us now consider the psychogenesis of our moral evaluations, the second issue. It is true that we strive for certain consequences as values, but these consequences would not have value for us were it not for the subjective harmony involved in the mere willing of them. It is disposition which gives the subjective harmony that is the basis, say, of the judgment that honesty is good; honesty is ordinarily, indeed, the thing which produces certain consequences, but its goodness is not in the effects *per se* so much as the subjective *élan* involved in our intending these effects.

Finally, it seems justified to attack the pragmatist position that moral judgments always have reference to conduct, are always "judgments of practise." There are moral values which have nothing do with action, and even the values of moral conduct are evaluated often in a different aspect—as states of consciousness alone. "The kingdom of heaven is within you" and "As a man thinketh

in his heart so is he''—are symbolic testimonials to the inwardness of moral value. With those who have advanced furthest in moral experience, the decency of consciousness is the most cogent moral goal of all, and the attainment of some *élan* of humility, love, or vigorous thought is viewed with a passionately moral aspiration.[1]

I wish finally to view ethical pragmatism most generally and to criticize it as sponsor of a specific kind of ethical striving, mood, evaluation. The gaze of the pragmatist, whether as psychologist or ethicist, is focussed primarily upon a single virtue which, his manner would often imply, is virtue itself, all of virtue—*social* striving. Now there are few of us who would not like to see a mitigation of the indecencies of present social arrangements, but the objections to an ethics with social progress as an *obsession* are certainly cogent. It is a mark of ethical immaturity, or at the very best, of misguided and needless asceticism, to make the social identical with the ethical, as though there were no other important things than what happened to the great herd. The duty of social contribution is an elementary decency, but like all elementary decencies it should be taken for granted, without too much exuberance over it—in much the same casual and unpremeditated manner that we go out of our way to cast our annual socialistic or liberal vote. It seems that the pragmatist's exuberance over social reform is allied with a tendency to neglect individual values and to obscure the true richness and complexity of the best ethical life.

But even should one take the well-being of the general public as the *summum bonum* it is nevertheless a discouraging truth that pragmatism does not help us much in helping the general public. Professor Moore, talking about social progress and pragmatism, says that we should move in the direction which "in view of all the material and machinery available promises the largest satisfaction." But since many desires and values usually press for acceptance at the same time, and there may be machinery available for realizing, if not all, at least a plurality of these equally, how shall we decide with which one ought to be satisfied? The problem of social technique, of the use of existing machinery after one's goal has been fixed, is not so difficult, and it is from being presented in the context of social *instrumental* values that the pragmatic method has its specious plausibility. The problem of the goal of social progress is much more formidable and there is more than one answer to it, even at the same moment and in the same situation. In not answering this problem at all moral pragmatism appears as a philosophy which forever teases us about being on our way without ever telling us whither we should be going.

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[1] *Cf.* an article of the writer's: "The Disassociability of Morality and Conduct," *The International Journal of Ethics.* Vol. XXXIII, No. 4 (1923).

THE *X* AND THE *Y* OF PSYCHOLOGY—II [1]

IV

BEFORE presenting the application of our doctrine of qualia to the acts of behavior with which those qualia are associated as consciousness, it may be well to enter a *caveat*. We have no intention of saying that we think, or feel, or sense with our synapses, or cortex, or brain, or nervous system as a whole. We hold that all these and, besides them, the muscles and glands, the digestive, circulatory, respiratory, and eliminative systems, and even the skeletal framework of the organism, are implicated in even the very simplest bit of conscious behavior, as also of unconscious behavior. But we insist that thus to spread an act of thinking, feeling, or sensing over the entire organism, without specifically defining and allocating to each organ and tissue its own peculiar part in the whole act, is not getting down to the exact problem that is here before us. The age-old problem of the nature, content, and locus of consciousness is here involved, and it must be solved before the really scientific and valid portions of any psychological doctrine can come into their full meaning. Until such happy event occurs, the traditional, reactionary metaphysics will continue to take the really vital "kick" out of all our scientific effort, not only in psychology but in physics as well. We insist, as frankly, circumspectly, and tentatively as possible, that the elemental, "constitutive" qualia of our consciousness are specifically local in their time and place of occurrence, their locus being definitely intraorganismal and specifiably local.

An illustration may help to make our attitude more clear. It is apparently a fact that the entire solar system has participated in the production of a "Ford." The geologic ages have prepared the raw minerals; the biologic ages have prepared the wood, rubber, and cotton, and the human activities and intelligence that have gone into the preparation of these and into the creation of the whole. Nay, more, the solar system, through its geologic and biologic ages, has thus participated in the making of all the peculiar "sounds" that may characterize a particular Ford. It enlarges our vision, affords some interesting sentimental experience, and helps in the extension, organization, and understanding of our "world" thus to think seriously about so common a thing as a Ford. But thus, in general terms, to spread its begetting over all creation does little towards aiding us in the actual manipular understanding and control of the thing itself. When we get down to brass tacks, this particular Ford was finally assembled at some particular locus in the process

[1] Continued from previous number, Vol. XX, No. 20.

that constitutes our solar system, each conjunction of the assemblage having been coöperatively effected by a particular set of mechanisms and movements. Moreover, the effective running of the machine is a coöperative function of all the parts, not merely one of gasoline tank and battery. But the active, dynamic coöperation of these two factors, as of all the others, takes place at definite, specifiable loci, not in the solar system at large, nor even within the concrete mechanism itself at large. The mechanician who located the excellencies and the defects of the machine in such general terms would not hold his job in shop or garage for a single day.

And so we hold that to shy away from specific treatment of this historically baffling subject of the consciousness itself that characterizes the most significant acts of our waking behavior is not the way to understand it. We may understand and control behavior itself without trying to understand its conscious qualia—this we grant the behaviorist. But some others will not; all our educational, social, and religious philosophy is shot through with a naïve doctrine of the efficacy of consciousness. It is our business here to explain away consciousness, in its traditional sense, as having existential or behavior status, and, therefore, efficacy over the behavior of masses and their aggregates. Because in our present foolish and sinful state we seem to see the way to do so, we are seeking to help make straight the way of behaviorism as the practical mode of education, and hence of group and individual self-control. Hence also it becomes our business incidentally to indicate what seems to be the natural and inevitable point of view from which this self-control should be exercised. Our immediate point of interest, however, is this: that, while a process of thinking, knowing, imaging, sensing, or feeling is an act, involving more or less of the organism as a whole, yet the qualia of consciousness, the content or terms in which these acts are appreciated, have definite occurrential loci as characters of impacts.

V

Now, there are three traditionally differentiated kinds of conscious experience, designated respectively as sensation, emotion, and feeling or effective tone: there are the two kinds of effective tone, agreeable and disagreeable; there are the several kinds of emotional experience, such as fear, anger, disgust, curiosity, awe, sex love, maternal love, *etc.;* and there is all the variety of sensory experience associated with the several kinds of sensory end-organs, or receptors. It will be asked how our simple hypothesis of impacts and their qualia can possibly serve to explain all these qualitative differences of conscious experience. Before proceeding to the direct answering of this question, let us note a few preliminary considerations.

First, it is generally supposed, for apparently good reasons, that conscious experience is somehow related to currents of neural excitation initiated in receptors, outside the brain, and destined for effectors, also outside the brain. We here suppose that it is the primary business of these neural currents to activate effectors, not to engender "experience."

Second, these currents of intra-neural commotion are supposed to be mechanistically determined throughout their respective courses—as to velocity, direction, *etc.*—by the nature of the neural content or current medium itself.

Third, these currents of neural excitation thus appear to consist in movements of neural masses—molecular, atomic, or sub-atomic, perhaps of the nature of serial vibratory commotions or waves of disturbance.

Fourth, these currents seem to have a velocity ranging from one hundred to four hundred feet a second. It is to be noted that this lesser velocity is over three times that of a boy making the hundred-yard dash in ten seconds—a speed surely sufficient for the production of significant impacts, whatever be the size or mass of the bodies that exhibit it. Of course, the Berkeleyan idealist will dissipate this whole process by reducing the masses themselves to sensations; but we are here endeavoring to show him the nature of sensations. If he would frankly reveal his hand and show us just what it is that he is trying to save by thus trying to reduce the quantitative to the qualitative, and the natural itself to the terms of our comprehension of it, the battle ground of science and philosophy would be much cleared.

Our hypothesis, assuming as it does that consciousness is "constituted" of the qualia of mass impacts, now requires of us two things: first, to substantiate a conception of sufficient differences in kind among the neural masses that collide, so as to account for all the many differences of qualia that "appear in" and "constitute" our consciousness; second, to indicate the loci at which such impacts occur.

Recent studies in the chemistry and physics of the nervous system seem to point the way to an answer for the first question. I refer to the amino-acids, at least seventeen in number, which appear to be only so many different isomeric organizations of one and the same natural, neural content. If we suppose that our intra-neural impacts are confined to collisions between paired masses wholly within the compass of these seventeen different isomeric forms, this conception of paired permutations of masses in collision affords the possibility of one hundred thirty-six different kinds of qualia or conscious experience.

Does the range of our consciousness qualia transcend this number? Aside from hearing, with its several octaves, it may certainly be doubted whether they do, and the several octave differences here occurring may themselves be merely thus many frequency variants of just so many qualia. Much of our conscious experience consists in a synchronous occurrence of two or more kinds of qualia related to stimulations to which differential responses can not be made, just because they are synchronous, while the organism must respond as a unit. The result is experiential "fusions" or "blends," which *appear* to be a result of mutual modifications of the synchronously occurring qualia themselves, and appear to be different from any of the qualia when occurring alone. The synchronous "tastes" of salt and sugar in our bowl of breakfast oatmeal illustrate the case; we can not adjust ourselves and respond differently to the stimulations of salt and sugar at the same instant. Nor can we in the case of synchronous retinal stimulation by "red" and "yellow" light; here we make a combination, unitary response, "orange." We may perhaps think of the synchronous, differential retinal response to the two kinds of etheric waves as being a selective function of correspondingly different radial planes of the retinal cones. But the unitary effector-response, whether vocal or otherwise, is a response to this "massive" stimulation, not to the "sensation," or psychical qualia that occur in the course of the receptor-effector process. A different type of combining response, both of receptors and effectors, is manifest in the fact of the smooth, pulseless experience of light from an alternating current, whose pulsations occur in such close sequence that we can not respond to them individually.

When we take into account all such known facts as these, we may well doubt whether the range of conscious experience even realizes its full possibility of one hundred thirty-six different kinds of qualia. The apparent blending of sensations, of all kinds and grades, this together with the synchronous occurrence of one or both of the kinds of experience designated as emotion and feeling, makes it appear that the range of our consciousness qualia far transcends the number of kinds of qualia here suggested. But the erroneousness of the appearance seems easily explicable. We have already indicated our attitude towards any suggestion that qualia may actually modify one another, or the synchronous quanta of their impacts, or the impacts themselves. This attitude will be further exhibited when we come to a consideration of thought and imagery.

Owing to the influence of behaviorism, there is a current tendency to define sensation, emotion, and feeling as "response."[2] Now the

[2] *E.g.*, Woodworth, R. S., *Psychology* (1921), pp. 100, 187, 134, 175; and

fact of response is obviously the most significant aspect of the total organismal processes that fall within the scope of psychology. The receptors must respond to the stimulation of light waves, heat waves, sound waves, tactual stimuli, muscular and glandular stimulation, *etc.* The initial factor in the conduction unit that intervenes between receptor and effector must respond to the commotion thus set up in the receptor; so also must each successive neuronic factor of the conduction unit respond in turn to the commotion transmitted through its predecessor. So too, of course, must each successive massive unit of each neuronic content respond to the commotion of its predecessor, whether the behavior of these constitutive units be chemical, physical, or electrical. And so, finally, must the ultimate effector—muscle or gland cell—respond to this neural commotion, else all this neural activity and the stimulus itself have occurred in vain. Surely a process of sensing, of feeling, or of experiencing emotion is an act, involving a greater or lesser portion of the total organism, in addition to the digestive, circulatory, respiratory, and eliminative systems, which keep the organism in a condition responsive to the environment.

But it would seem rather obvious that a sensory quale—and a feeling and emotional quale, also—is not a response. In fact, if our hypothesis of impacts is a correct representation of the occurrence of the psychical, the occurrence of a consciousness quale would seem to be evidence of a failure to respond, an evidence of too great inertia on the part of the smitten unit for an effective response. Nor, indeed, is it necessary to suppose that the consciousness of any instant is a function of any circuit that is effectively functioning in that instant. If the impacts involved in successful effector stimulation do exhibit qualia, these are apparently subliminal. We have no way of determining how much qualitative experience is had or "enjoyed" by the lower organisms. But we may note that our own most effective, habitual responses are quite devoid of qualitative experience directly related to either the effective stimulation itself or to the production of the effector response made to it. On the other hand, as we subject ourselves to stimuli for which we have habitual patterns of response, but to which we do not make appropriate response, perhaps because of too great somatic or effector inertia, here it is that we have most qualitative experience. In such cases it is the usual thing for our language mechanisms to be set in action, overt or implicit—perhaps by a diversion of the residue of the current momentum; for these are far less gross and inert than the primary somatic effectors; they have only the burden of their

Mursell, James L., "The Concept of Sensation," this JOURNAL, Vol. XIX, pp. 684-690 (December 7, 1922).

own activities to bear. Hence it is, it would seem, that we can "enjoy" consciousness and make language responses, both in response to the same stimuli.

It would seem possible that a language response made to a massive stimulation may designate, not the stimulus itself, but the qualia engendered by the current thus set up, as its course is more or less effectively blocked at some point, being thus diverted into the language mechanisms. Certainly, in the case of retinal stimulation we have no awareness of the etheric waves of the physicist; and a manual or a language response to this stimulation, whether it indicate either the "seen" object or its "color," does not designate this true stimulus.

It would seem, then, that conscious experience is a function of current impacts which are inadequate in momentum or which are inhibited by inertia or otherwise from continuing into the efferent arc that neural commotion which would activate the normally associated somatic effectors. In such cases, however, we may understand that part of the current momentum is diverted to the language mechanisms, whose responses may be either overt, constituting speech, or implicit, constituting thought. In other words, a qualitative experience represents a thwarted or truncated somatic response, primarily a response to stimuli irrelevant to the main activity of the moment, the inhibition being necessary because of the unity of the organism. And language and thought respectively are indirect, substitute responses to these apparently ineffective stimuli, indicating either the source of the stimulation or the experience had. But these mechanisms can carry on activities on their own account, without the need of external stimulation, because contraction of their own muscles serves in turn as stimuli to other responses, and this not alone of the language mechanisms themselves, but of glands and somatic muscles as well.

It is perhaps clear by this time what we would identify as the general locus of impacts whose qualia we regard as "constituting" consciousness. This general locus is constituted of the cortical synapses, which psychological endeavor has for some time been trying to conceive of as the locus of the elements of consciousness. But we have tried to be duly circumspect in arriving at this decision. The presentation just made, in the last few paragraphs, is not our point of departure, but a result of our decision.

If we accept the notion of a patterned, organized reflex circuit involving cortical elements as a gross, unitary mechanism of a response accompanied by consciousness, and hence as a locus of consciousness qualia themselves, when its response is more or less in-

terrupted, we may still further refine this general locus by thinking of this circuit in terms of a single-cell receptor-effector unit, with a single-strand conduction unit intervening. Counting the point of stimulus impact upon the receptor and the point of efferent-nerve juncture with the receptor, we find here at least ten different kinds of points at which impacts may conceivably occur. After what seems to us a careful canvass of all these possibilities, we have decided upon six as possible candidates, all being cortical synapses, and all resolvable into two planes, which we shall denominate as afferent and efferent. But more of this anon. The one hundred thirty-six possibilities of paired permutations of isomeric masses in the relation of impact we locate in the synapses of the cortex.

VI

Our hypothesis of impacts and qualia, and of cortical synapses as the loci of such occurrences, assumes that each synapse is a locus of a particular qualitative occurrence, this because of a uniform organization and behavior of the masses that there collide. Each synapse, we suggest, has its own specific quale, with liminal-lintel range of intensities. There is surely no more reason for objection to this assumption than for wonder that a certain natural content should not fluctuate and unreasonably manifest itself now as carbon and again as diamond or lampblack. Hence we assume that the several sensory, emotional, and feeling qualia probably occur in specific areas of the cortex, in specific associations of consistently organized neural content. But it is no part of our business here to speculate about the location of those several areas. All we shall attempt to do is to determine the direction of the current as it engenders each of the three kinds of conscious experience. We have suggested that the cortical synapses may be regarded as of at least six groups, where even a single-cell receptor-effector strand would manifest this many possibilities of impact differences. These six groupings are as follows: (1) those at the point of afferent juncture with the cortex; (2) those between this point and the last cortical neurone before the current passes into an association fiber; (3) those at the point at which the current, still afferent in direction, passes into an association fiber; (4) those at which the current passes from an association fiber into the cortex again, thus becoming efferently directed; (5) those between the association fiber and the last cortical neurone before the current passes into an efferent conductor—and here should possibly be included the motor tract; (6) those at which the current passes from the brain into the first unit of the efferent conductor. This, of course, is a grossly schematic

presentation of the case; in particular does it take no account of the frontal loops, possibly belonging to the language mechanisms, nor of the probability that currents traverse several association fibers instead of merely passing from "sensory" to "motor" areas over a single fiber. Its value here may perhaps be only to suggest the care with which we have tried to make our canvass of possible loci of impacts. On the other hand, it may be fruitfully suggestive to some one else. Of course, not all these points may be loci of differential impacts—even supposing that any are; the fact of currents coming from several kinds of receptors, and passing out to activate several kinds of effectors, may make up for whatever of the one hundred thirty-six possibilities are here unrealized. As before stated, we here regard all these synaptic loci as falling within two planes, afferent and efferent, according to the direction of the current as it traverses them.

Before proceeding to consider how the three kinds of experience are distributed between these two planes, we should perhaps consider the nature of the synaptic process itself. Here two factors are involved, one or both of which are variant—the current content and the synaptic dam against which the current masses impinge. We have perhaps said enough for our present purpose regarding the nature and constitution of the current itself. Yet a further thought or two may not be out of place.

If we could positively identify the velocity of the current, in afferent and efferent arcs, and in still further subordinate tracts of the circuit, we could then perhaps, in time, determine definitely whether it is molecular, atomic, or ionic, or perhaps sub-ionic, and even identify the differences in kinds of masses that manifest the differences in velocity—if there be such. For, seeing that there are variant qualia of impacts—so we assume, we must suppose that correspondingly different masses are involved in these impacts, whether these variant masses be of the current content or of the synaptic mechanism.

The nature of this resisting mechanism of shifting gearage between receptors and effectors has been variously described as a membrane, an electro-endosmotic layer, and as a film of separation, or film of surface tension, or merely a surface film.[3] The essential characteristic of all these descriptions consists in the fact that all ascribe the resistance to organizations of galactic masses, whatever the rank and kind of these may be. Here, together with our ability to measure, however inaccurately, the velocity of the current, also constituted of masses, is abundant room for the conception of im-

[3] *Cf.* Dercum, F. X., *The Physiology of Mind* (1922), pp. 20, 70ff.

pacts as the condition of qualia such as our hypothesis assumes. And, as we have suggested, the seventeen different isomeric organizations which neuronic contents assume, however these be distributed between current content and synaptic films, would seem to furnish the ground for all the qualia that constitute our highly varied consciousness.

Of course, there is here involved, in the differing behavior of these masses, a kind of physicist's surd—the problem of conceiving of the source and support of the differing mass-behavior that is exhibited. Perhaps here, also, we should make the distinction between a basic reality and its characters. That is, the "motion" exhibited by the elemental natural masses is a natural character of them as such. These masses are each its own source of "energy" and "motion." To talk of "matter *and* energy" is like taking a census of men and statures or like listing circles and diameters separately, as two kinds of independent entities. "Energy" is a character of matter—whatever this may be; but it certainly can be reduced neither to physical terms of measurement nor to metaphysical terms of sensation or consciousness. Again, movement, behavior, activity can not exhibit themselves, apart from a massive content itself that moves, behaves, or acts. A merely moving movement, a merely behaving behavior, is as unthinkable as fried ice, or as honesty without a man. Honesty is a form of behavior, as is motion, rest, steel, electricity, life, or character; but wherever there is behavior there is a massive content, of which the behavior is its mode of existence and manifestation.

Hence it would seem that it is not incumbent upon the physicist to explain "why" an ion behaves as it does. His problem here is to exhibit—say in mathematical terms—its apparent regularities and irregularities of behavior. At some point we must "accept the universe." And so also is it not incumbent upon us to explain why impacts exhibit qualia—if they do. Our problem here will be completely solved when some one can state in mathematical terms a constant relationship—if such there be—between the quanta and the qualia of impacts that occur between physically describable combinations of natural masses. Let him who objects to such a programme reveal what it is that he is trying to save by such opposition; and then let him give equal attention to running down and exhibiting that precious thing in all the specificity of its existential and occurrential status—and still others if such there be.

But how do our hypothesis of qualia and our notion of experiential planes suggest that we distribute our three kinds of experiences between the two cortical planes that we have schematized?

First, we hold that these three reputedly different kinds of experiential qualia are of an identical mode of production. Second, as we hold that differences of "sensation"—as vision, hearing, *etc.*—are functions of different synapses, perhaps grouped by natural organization into somewhat diffuse local areas, so also do we suggest that corresponding differences of "emotion" and "feeling" are to be explained.

The so-called sensations, then, we are inclined to locate universally as synaptic functions of afferently directed currents, that is, in the afferent-associational plane of shifting gearage between receptors and effectors, as current tradition tries to do.

The emotions, in like manner, we locate as functions of the motor, or associational-efferent plane of shifting gearage, admitting that this plane may include the motor tract. Our reason for thus disposing of their occurrence is the fact that they seem to be so intimately associated with more completely organized somatic responses than are the sensations, and especially with inhibition of overt responses whose mechanisms are obviously being innervated. An emotion is thus a substitute for an overt somatic response; in other words, it is a "truncated act."

To which plane, that is, to currents of which direction, shall we ascribe the production of impacts with the pleasant-unpleasant qualia? Here we get our most illuminating suggestion from a recent article by Allport.[4] He connects the pleasant series with the craniosacral division of the autonomic system, and the unpleasant series with the thoracico-lumbar division. As he points out, there is evidence to show that these two kinds of experience, or qualia, are not functions of the efferent excitation that activates the visceral-emotional effectors of their destination. Hence we must regard them as functions of afferent currents set up by the activities of these emotional effectors themselves, the glandular and smooth-muscle effectors of the autonomic system. Now the afferent arcs from these autonomic effectors, even of both divisions, belong to the cerebro-spinal system. Hence they may be supposed to have cortical courses on their way to activate effectors whose business it is to coöperate with these internal organs, or with which it is the business of these organs to coöperate.

As for the conditions of stimulation of these two divisions of the autonomic system, this would seem to be the result of an overflow of excitation from the cerebro-spinal system. It is recognized that pleasurable feeling accompanies successful responses, and unpleasant feeling, difficult or unsuccessful responses. In case a poorly

[4] Allport, Floyd H., "A Physiological-Genetic Theory of Feeling and Emotion," *Psych. Rev.*, Vol. XXIX, pp. 132–139 (March, 1922).

organized tract or pattern is excited, or in case a conduction unit is not "ready" or free to respond, resistance encountered by the current causes it to well over into the thoracico-lumbar division, with results already described. In case of a well-organized tract ready to respond, that is, in case of successful adjustment to a highly relevant stimulus, the stimulus is more than sufficient to activate this tract, whence here also there is an overflow of current, but this time into the cranio-sacral division.

Now all this means that we have subsumed the explanation of the three traditionally differentiated kinds of "experience" under one principle—call it sensation or what we will; and this in turn we have explained with reference to natural events, as consisting in qualitative characters of massive impacts occurring in the cortical synapses. Behind this explanation—supposing it to be correct—lies still another question. We should like to know what are the grades and several kinds of masses—molecular, atomic, or sub-atomic—that have coöperated in the impacts exhibiting these qualia, and whether the variant masses involved in qualitatively different impacts are those of current content or those of the synaptic films, or perhaps both. These well-nigh ultimate details of the conditions of consciousness we may be long in working out.

VII

A further question now arises regarding the nature that thought assumes in view of this hypothesis.

As we have indicated before, the conception of sensation that we have here attained forbids us to think of it as constituting any sort of direct revelation regarding the nature of the external things that serve as stimuli to our receptors. That nature modern science seeks to understand in terms of behavior, in terms of masses, whose contours, dimensions, and movements can be traced and reproduced by the human hand, under the surveillance of the eye. So it is that we understand the solar system in terms of the forms and sizes of its several members, of the forms and sizes of their several orbits, and of their several velocities, all reproduced on a mathematical scale by the human hand. Let it be recalled here that number itself and its system were developed by manipulation of the hand. And so it is also that science is endeavoring to understand the nature of the molecular, atomic, and sub-atomic systems. Incidentally, in all this endeavor, sensations occur; but these are functions of organismal adjustment and not existential constituents of the stimuli whose nature is being investigated.

The external stimulus, the natural thing, is "out there," in its

own right, just as we as natural things are "here," in our own right. Its existential status does not depend upon any experience of ours, any more than our existence depends upon it—nor even so much. On the other hand, the experiential "object" of the philosopher, whether this be perceptual or imaginal, is wholly a functional "thing," "constituted" of the variant and blended stream of synchronously occurring qualia; it is but a momentary iceberg in the stream of experience. Its status is wholly occurrential as to time, wholly subjective in locus, being wholly confined within the subject's own integument, even apparently within his own cranium. Its elements are functions of the subject's patterns of adjustive response to the natural things—external and internal—of his receptors' contact. Compared with the external thing itself—our reference is to vision—the "object's" definiteness of form is a mark of the definiteness and adequacy of these patterns of response. The natural thing is "known" in terms of these patterns of differential response, as they become integrated with each other and with patterns of substitute response in the language mechanisms whereby the various aspects of the thing itself and of our responses to it are indicated. The functioning of these patterns is "known" in terms of qualia related directly to coöperative impacts of current and synaptic masses, and indirectly yet mechanistically related to the stimulus, through responsive selection of the receptor and mediation of the current.

Thus the qualia of experience, non-existential things, become substitutes for existential things and their manifestations, and are mechanistically related to them. And as various words of our language indicate neither stimulus nor response, but qualia of experience, thus in turn words, massive, existential things, become substitutes for these occurrential, non-existential things. Hence, while the qualia of experience can not serve as stimuli, either to motive or to modify an act, yet indirectly, through words and the activities of the language mechanisms—whether explicit or implicit—they can nevertheless do so.

Thought, then, is not carried on in terms of consciousness, but in terms of serial activities of organized patterns of the language mechanisms, the patterns of these mechanisms being themselves integrated with those of the somatic mechanisms which they mean or point to. Our thought about things is being constantly tested by referring the activities of our language mechanisms to those of both the achieving and the attentive mechanisms of the soma. In reading a history or a novel, we live over the activities of the characters there described, else we do not understand what we are reading; and

this we can not do unless we already have organized the patterns for so doing.

Hence, also, then, intelligence is not merely a matter of the head. It involves a responsiveness of both receptors and effectors, as well as of the neuronic units of the intervening neural tracts, and as well as an ability of these latter to inhibit differentially. It involves an integration of patterns of response—habit and memory—as well as mere responsiveness. Intelligence is the ability to make consistently differential responses to specifically different stimuli. And knowledge as a possession consists in the accumulated repertory of such patterns of differential response.

Sensations and images are simply identifying tokens of the patterns that are functioning; more particularly, of patterns that are functioning against some competition with other patterns and their stimuli. Richness of content and definiteness of imagery are not necessarily evidences of intellectual efficiency. The range and definiteness of images indicate the range and definiteness of organized response patterns, but their richness or vividness is an evidence of internal competition among these patterns, and therefore among their stimuli; and therefore it is an evidence of lost motion, that is, of less than maximal efficiency of response to the effective stimulus. The behaviorist, a man of relatively low imaginal experience, is, other things being equal, a relatively more efficient machine of immediate differential response than is his imaginal and introspective brother. On the other hand, the man of vivid imagery, just because of the inner conflicts of response thus revealed, may be taking a better account of his data; he may be less impulsive, more Promethean in the adjustments and conclusions that he does make. There is an efficiency of wide and thorough forethought as well as of immediate, unblocked response; there is a loss of energy in error and in regret over undue haste, as well as in too cautious advance.

VIII

In conclusion, we suggest that we have indirectly indicated the way of bringing introspectionist and behaviorist to terms with each other, though possibly not to the satisfaction of both, or of either.

First, in favor of the introspectionist, we have indicated that the qualia of experience are just as real and natural as are stimuli and organismal responses, the converse of which the introspectionist has never questioned. Behaviorism may try to use Occam's razor and ask wherefore Nature should produce such things as qualia. We reply that behaviorism would thus cut off the limb of consciousness upon which it depends, through language, for carrying on its

very own investigations. Youthful shavers should be more careful in their use of edge-tools. Consciousness, like the stuff and the "energy" of the physicist's ultimate masses, is a surd that we must accept as a part of the universe. But we can state in physical terms the conditions of its occurrence, its varying qualia, and their intensities.

Second, in favor of the behaviorist, we have indicated that all direct efficacy is confined within the realm of massive, existential, behaviored realities, and that, directly, the realm dealt with by the introspectionist is but so much velvet incidental to the massive processes of organismal behavior.

Third, we have indicated that the qualitative realm, however, does seem to have indirect efficacy, through a substitutive function of language, a suggestion which the behaviorist may be inclined to dispute.

Fourth, the X of psychology is the differential qualia of impacts which are coöperative functions of differing isomeric masses constituting the neural excitation and its synaptic obstructions in the cortex. The Y of psychology is the logarithmic relation that apparently is statable between the quanta and the vividness of qualia of these synaptic impacts, a relation that is apparently different for differently paired combinations of these isomeric masses. This is not to say that there are not other X's and Y's of psychology, but only that these are conspicuously problematic quantities of present-day psychology.

And finally, if our hypothesis of qualia and its application to the facts of experience be at all valid, we have cleared the way for behaviorism as the mode of scientific psychological investigation, and also for the application of scientific knowledge to education and to all forms of social organization. The Stimulus-Response psychology affords the only scientific pattern within which scientific psychological endeavor can be conducted on the explanatory level, as it affords the only scientific pattern within which psychological knowledge can be put into practice. The introspectionist himself can get no consciousness to inspect save as a result of stimulation, and his determinations of qualia are inevitably more or less discolored by synchronous activities of his attentive mechanisms. Our mental-tester is a behaviorist of the first water—until he stops, short of his scientific, psychological goal, and tries his hand at social engineering on a mass of false premises: need of "progress," as if the business of the race were to live in order to progress, rather than progress in order the better and more surely to live; need of "leadership," as if it were not the business of a "democratic society" to rear its

young to be self-leaders, beholden to nothing save racially valid ideals or objectives; variant levels of "general intelligence," as if every response were not a specific act of specifically integrated stimulus-response mechanisms, as if the "normal" individual did not exhibit wide variations of efficiency among his various integrated mechanisms, and as if he did not exhibit potentialities for both excellences and defects with reference to the generalized "level" of intelligence to which a narrow sampling of his responses supposedly condemns him to be rated. It would not be so bad if the mental-tester, in the interest of economizing his own time, did not put an equal value upon rapidity and accuracy of response, thus stacking the cards against the slow and careful worker. It would not be so bad if he were not possessed of an unjustified traditional bias which would link up men's social status with their economic rewards rather than with the really racial value of the kind of work they performed, and if he did not, therefore, have an eye-single upon those economic rewards for the upper level—because, of course, he and his immediate posterity must presumably be of that level. Perhaps the greatest single fallacy in this engineering programme is to be found in the fact that but few men's service to society and the race is the work of all the mechanisms sampled by the intelligence tests, whereas most men's achievements are the work of highly special mechanisms, which have become still more highly specialized and efficient in the course of that work itself. Thanks be to our knowledge of educational history and to our own experience of Herbartianism, "correlation," the Speer method, *etc.*, we may expect soon to be through our present slough of mental testing for purposes of social control. But let us squeeze the lemon dry while we are at it, so that the work may not need to be done again. Then the behaviorist educationist can go back to his unfinished task of really scientific investigation, unbiassed by false social presumptions regarding the nature of his work. For the young, the problem of education is that of organizing patterns of humanly valuable response to the things of their environment. For the educator, the problem is, therefore, to determine the more specific racial objectives to be attained, and then to select and devise the appropriate stimuli to produce the required results, meantime helping pupils to select their life work according to their special aptitudes, which it is part of his task to discover.

As the human species, like all other existences, is a mode of behavior, and as its continued existence is a function of behavior, it therefore becomes the business of educational, social, economic, and political endeavor to secure such voluntary behavior on the part of the individual and of local and functional groups as will most

certainly spell the longest possible continuation of existence for the race as a whole—a conception of life of which we fall short at the present time. This means also that society must furnish the individual the appropriate stimuli for producing the desired behavior on his part, and not rely for this purpose upon words alone, mere substitute stimuli and substitute responses, as it so largely does today. By thus conceiving of human existence as a mode of behavior and of its continuance as the proper function and objective of behavior, we are making the conditions of scientific psychology and the aims of its specific applications as objective as are those of any other science and its art.

Philosophical implications a-plenty are suggested here, but they are not a part of our present business. But this at least we suggest, as a result of our occurrential determination of the nature of consciousness: Philosophy, which must always go to science for its data, is here given notice that no longer may it garble and emasculate those data in the interest of a theologico-metaphysical tradition and the unequal privileges and blessings that it sanctions. Scientific data have the right to be employed on their own merits and with their own meanings. We believe that we are here helping to clear the way for a real philosophy of science, a really scientific philosophy, that has direct reference to the natural world process of which we are an integral part. The traditional etiquette of a transcendental world no longer has any meaning for us. When men in such increasing numbers are taking out citizenship papers in this world, only a behaviorist philosophy of this world will provide them with the needed constitution and bill of rights; and only a naturalistic, behaviorist psychology can take account of the efficacious realities of experience, whereby the rights and responsibilities herein contained may be assured of enjoyment and performance.

ORLAND O. NORRIS.

YPSILANTI, MICHIGAN.

BOOK REVIEWS

Revue de Métaphysique et de Morale, Vol. XXIX, No. 4 (numéro exceptionnel,—*Mouvement Général de la Pensée Américaine*).

The number of the *Revue de Métaphysique et de Morale* for the last quarter of 1922 is a remarkable, and so far as I know unprecedented, example of enterprise in the field of philosophical journalism. It is devoted to a conspectus of American thought, presented by distinguished and typical American thinkers.

The table of contents is as follows: J. R. Angell, "Psychology in the United States"; J. M. Baldwin, "The Outcome of Logical

Mediation: Intuition"; J. Dewey, "The Development of American Pragmatism"; W. E. Hocking, "The Principles of Method in the Philosophy of Religion"; C. I. Lewis, "Logic and Mathematical Method"; R. B. Perry, "The American Conscience"; S. P. Sherman, "Contemporary Movements and Literary Tradition in the United States"; E. G. Spaulding, "The Natural Sciences in America"; W. M. Urban, "Æsthetic Criticism and Philosophy in America."

It will be seen that the distribution of the special subjects among the various contributors is singularly well done. In several instances one recognizes at a glance that the "one best man" has been secured for the given task. In no instance can I think of a clearly better selection that might have been made.

If any criticism is suggested, it is that several subjects which have been most agitated in this country during the last few years are either barely touched upon or left altogether unmentioned. Thus there is almost no account of any phase of the realistic movement and no discussion of the metaphysical aspects of behaviorism; while there is scarcely a suggestion of the persistent strength of absolute idealism. To this extent the collection of essays falls short of being representative; but where so much is given it would be unfair to insist upon omissions.

The contributions are of three sorts. Some are simply surveys of recent scientific work. Others are critical reviews of intellectual movements. Still others are original and independent studies of special topics.

In the first class belongs President Angell's opening article. He finds room to mention a dozen different phases of psychological investigation in this country—most of them with special laboratories and periodicals. Verily our psychologists have become a mighty host! How deeply the French reader will be impressed by the recital may be doubted, though he may well be moved to envy by the extent of our material resources. But he should certainly be struck by the account of the development of Binet's mental testing, and of the great service which the army tests rendered during the war. For Binet was a prophet without honor in his own country, and even today the mention of his name there is more likely to occasion a slight shrug of the shoulders than any warmer or less noncommittal expression of appreciation. Professor Spaulding's paper is somewhat similar, but covers a far greater field. It comes as close, perhaps, to the accomplishment of an impossible task as could have been hoped for. The writer touches upon recent work in mathematics, astronomy, chemistry, and biology, and concludes with some interesting pages on the developments of psychiatry which have been occasioned by the special problems arising out of the great war.

At the other extreme are the contribution of Dr. Baldwin and that of Professor Hocking. The former is a discussion of a topic in genetic logic closely connected with the sections on mediation in Volume II of *Thoughts and Things*. The most important contention is that the immediacy of intuition is a product of successful logical mediation—not original, but derived; and consequently that no intuitive principle is applicable to all experience without reserve, each being restricted to the sphere of its own origin.

Professor Hocking gives in some twenty clearly and forcibly written pages a new presentation of his general standpoint in the philosophy of religion, and especially of his relations to James, Royce, and Bergson. It is a notable piece of apologetics, the earnestness and ingenuity of which can not fail to win appreciation. The admitted utility of religion is urged as evidence of its essential truth. "Either there is a metaphysical object of worship, *i.e.*, a God, or religion and the practices associated therewith are bound to disappear, and it is well that they should do so." Faith, as James came finally to see, must have a cognitive relation to an independent reality. Royce's criticism of mysticism as an endless iteration of tautologies is acknowledged to be formally correct; but in the expressions which he cites the mystics have not done themselves justice. The religious intuition has the highest degree of certitude, but the lowest degree of conceptual clearness. Hence it is in need of *interpretation*, which, while fallible and requiring endless revision, not only preserves the essential truth of the intuition, but makes it directly available for the service of human life.

Professor Lewis's paper begins with an excellent treatment of the relation of symbolic logic to mathematics generally, and of the essential difference between the logical systems of Peano and Russell. This is followed by an inadequate but suggestive account of the work of Peirce and Royce. Unfortunately, this part of the paper is marred by bad proof-reading as well as by inaccuracies of statement which must bewilder the uninitiated reader. It is, for example, untrue that for Royce "any collection, every element of which has one and only one obverse, is an O-collection." The article concludes with a reference to the work of Huntington, Sheffer, and Bernstein, and a brief account of the author's own theory of "strict" implication.

It was an inspiration to get Professor Dewey to write on the rise of pragmatism, and no one who has an interest in the thought of our time should overlook his article. As it is intended primarily for French readers, emphasis is laid upon the correcting of certain misconceptions which have been common in European circles, especially the interpretation of it as a glorification of action or as a reflection of

American commercialism. But the American reader and even the special student of pragmatism will find much that is both interesting and instructive. The article has indeed a permanent and not a merely transitory value. One point which deserves special mention is the contrast which is drawn between Peirce and James with respect to their treatment of the relation of meaning to behavior. Peirce held that the meaning of any expression is to be identified with its bearing upon human activity. James preferred to say that the reference was to *particular* experiences, whether these were active or passive. "Practical," it will be remembered, he defined as synonymous with "particular." Professor Dewey's account of his own instrumentalist logic is the barest outline; but he draws attention to its relation to the behaviorist psychology, on the one hand, and to the neo-Hegelian tradition—in which he himself was trained—on the other. It is to be hoped that the article will soon appear in English.

The contribution of Professor Perry and that of Professor Sherman are closely connected in spirit, if not in content. The latter is a brilliant sketch of the history of American literature, concluding with a most characteristic lampoon of the ultra-radical movement in contemporary poetry and fiction. The criticism is unfair, of course—the author has no sympathy for growing-pains—but it is penetrating and, at times, delightfully funny. Professor Perry, in what are perhaps the finest pages of the entire number, analyzes the great body of conservative opinion in America, and shows why it is that such tendencies as those towards socialism, communism, and syndicalism make so little headway in this country: because of the faith of the masses in the essential value of the democratic tradition which has come down to them from the founders of the republic.

Professor Urban's article too has a certain connection with that of Professor Sherman; for it is a protest against radical tendencies in philosophy—pragmatism, for example, and neo-realism—and the protest is directly inspired by recent criticism of radical tendencies in art. Special reference is made to the writings of Irving Babbitt, such as his *Rousseau and Romanticism*. As art needs to be recalled to the objective standards of beauty, so, we are told, philosophy needs to be recalled to the objective standards of truth. The present reviewer must confess himself to be not very deeply impressed. The weakness of the dogmatist's position in esthetic, as in philosophical, criticism is that he can never effect a substantial agreement with his fellow-partisans, much less make headway against his adversaries. It is well enough to insist on standards; but where shall we find the standards?

To conclude: the publication as a whole is one for which both

France and America may well be grateful; and the reader notes with pleasure that it has already received honorable notice from the *Institut*. A portion of this honor reflects, of course, upon each of the contributors; but the chief share belongs, beyond a doubt, to the editor of the *Revue*, M. Xavier Léon,—a man of singular devotion to the cause of philosophical scholarship, as well as to the no less important cause of international understanding and good-will. While he has long since made of his journal one of the most important learned publications in the world, it may be doubted whether any of its issues will afford him more enduring satisfaction than this one.

THEODORE DE LAGUNA.

BRYN MAWR COLLEGE.

Measurement in Higher Education. BEN D. WOOD. Yonkers: World Book Co. 1923. xi + 337 pp.

The publication of this book opens to the general reader and the college administrator a new chapter in the application of scientific methods to the problems of university administration. Doctor Wood has handled his treatment in such a way as to produce both a summary of results obtained up to the present time and also a handbook of the technique of construction and interpretation of objective measurements, mental and educational. The fact that the book is primarily a summary of the Columbia College experiments from 1919 to 1922 does not lessen its value for the more general reader.

Four general types of measurements are discussed, *viz.*, intelligence tests, placement examinations, educational or content examinations, and criticisms of the traditional "essay-type" of examinations such as the Regents' examinations. The first five chapters are devoted to a detailed summary and evaluation of the *Thorndike College Entrance Examinations*. In this connection it is to be noted that many of the specific recommendations brought forward by Doctor Wood have been incorporated in the latest editions of the Thorndike tests. Comparisons are made with the Regents' examinations in use in New York which prove conclusively the superiority of the newer methods. A large number of statistical studies are introduced in proof of this conclusion. Chapters VI to XIII describe the methodology of the construction and use of objective content examinations in the measurement of college work. Numerous samples of true-false, multiple-response, completion tests, *etc.*, are given in the interests of concreteness. These cover the subjects of physics, zoology, economics, American history, government, philosophy, art, and engineering.

The author's plan of placing technical mathematical discussions

in footnotes allows the general reader to follow the argument without being diverted by statistical intricacies. The Appendix contains a selected bibliography of about fifty titles.

This book, the first of a *Measurement and Adjustment Series* to be published by the World Book Company under the editorship of Dr. Lewis M. Terman, serves excellently as an introduction to a phase of college administration that is certain to occupy increasingly greater amounts of time and effort on the part of college examiners, deans, registrars, and administrative officers generally. It is certain to be read with interest by all those who come in contact with the personnel problems of college students and faculties.

G. M. RUCH.

UNIVERSITY OF IOWA.

JOURNALS AND NEW BOOKS

SCIENTIA. Vol. XXXIV, N. CXXXVII–9. La théorie de la relativité et le deplacement des raies spectrales produit par le champ de gravitation: *Ch. Fabry.* The Mnemic Theories of Evolution: *S. J. Tomkeieff.* De l'influence allemande sur le mouvement historique contemporain: *H. Pirenne.* Pathologie économique. Une interprétation de la politique économique du temps de guerre et de l'après-guerre. II$^{\text{ème}}$ Partie: Mesures relatives aux divers facteurs de la production: *C. Gini.*

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NOTES AND NEWS

Dr. Maurice Picard has accepted an appointment as Assistant Professor of Philosophy at Wells College for the year 1923–1924.

Dr. George Peckham has been appointed Assistant Professor of Philosophy at the Sophie Newcomb College of the Tulane University of Louisiana, New Orleans.